ABSTRACT

CYTOTOXICITY TEST OF 4-META BASED DENTINE BONDING MATERIAL USING ACETONE SOLUTION IN DENTAL PULP FIBROBLAST

***Background**: Both carious and non-carious lesions which cover large dentine area are absolute indications to use dentine bonding. Clinically, dental preparation which then is subjected to composite using dentine bonding application often results in post restorative pain. Various studies suggest that post restorative pain is caused by the presence of residual monomers from the imperfect polymerization of a bonding material. The residual monomer can be a free radical that will induce oxidative stress conditions. This leads to a toxic effect on 4-META monomer as the base material of dentine bonding.* **Purpose**: To determine the toxic concentration of 4-META dentine bonding material using acetone as a solvent which causes 50% death of dental pulp fibroblast cells.* ***Methods**: Available human pulp fibroblast cells in each well, dripped with 4-META acetone solution at concentrations 5000 µg / ml; 2500 µg / ml; 1250 µg / ml; 625 µg / ml; 312.5 µg / ml; 156.25 µg / ml; 78.12 µg / ml; 39.06 µg / ml; 19.53 µg / ml; 9.76 µg / ml and two well were not treated as control group. The cytotoxicity test was performed with MTT-Assay Test. The optical dencity of each well was read by Ellisa Reader and the percentage of human pulp fibroblast cell death was calculated using the formula.* **Result**: The concentration of 4-META based dentine bonding with acetone solvent which can cause 50% human pulp fibroblast cell death (LC_{50}) is 1250 µg / ml.* **Conclusion**: The toxic concentrations are an amount greater than or equal to 1250 µg / ml.*

***Keywords**: Dentine bonding, 4-META, Acetone, Cytotoxicity, Fibroblast cells*